

What is claimed is:

- 1 1. A wireless apparatus comprising:
2 an adaptive channelization controller to determine which of a plurality of
3 predetermined sub-channels to use to support a multicarrier wireless link, based on
4 channel state information; and
5 a receiver chain to process a received multicarrier signal associated with said
6 multicarrier wireless link based on control information output by said adaptive
7 channelization controller.

- 1 2. The wireless apparatus of claim 1, further comprising:
2 a transmitter chain to generate a multicarrier transmit signal for said multicarrier
3 wireless link based on control information output by said adaptive channelization
4 controller.

- 1 3. The wireless apparatus of claim 1, wherein:
2 said receiver chain includes a frequency demultiplexer to separate said received
3 multicarrier signal into multiple portions based on frequency, said multiple portions
4 corresponding to said plurality of predetermined sub-channels.

- 1 4. The wireless apparatus of claim 3, wherein:
2 said received multicarrier signal is an orthogonal frequency division
3 multiplexing (OFDM) signal; and
4 said receiver chain further includes a plurality of Fourier transform units to
5 separately process said multiple signal portions output by said frequency demultiplexer.

- 1 5. The wireless apparatus of claim 4, wherein:
2 said receiver chain further includes a guard interval removal unit between said
3 frequency demultiplexer and said plurality of Fourier transform units to remove guard
4 intervals from said multiple signal portions output by said frequency demultiplexer.

1 6. The wireless apparatus of claim 4, wherein:
2 said plurality of Fourier transform units includes at least one fast Fourier
3 transform unit.

1 7. The wireless apparatus of claim 4, wherein:
2 said receiver chain further includes an adaptive parallel to serial converter to
3 receive output streams from said plurality of Fourier transform units and to merge said
4 output streams into a serial stream based on control information from said adaptive
5 channelization controller.

1 8. The wireless apparatus of claim 7, wherein:
2 said adaptive parallel to serial converter ignores output streams that are
3 associated with sub-channels that are not currently used in support of said multicarrier
4 wireless link.

1 9. The wireless apparatus of claim 7, wherein:
2 said receiver chain further includes an adaptive demapper to demap data within
3 said serial stream output by said adaptive parallel to serial converter based on control
4 information from said adaptive channelization controller.

1 10. The wireless apparatus of claim 2, wherein:
2 said transmitter chain comprises a forward error correction (FEC) encoder to
3 encode source data and an adaptive mapper to map the encoded data based on a
4 predetermined modulation constellation.

1 11. The wireless apparatus of claim 10, wherein:
2 said transmitter chain further comprises an adaptive serial to parallel converter
3 to convert a serial stream output by said adaptive mapper to a parallel format based on
4 control information from said adaptive channelization controller.

1 12. The wireless apparatus of claim 11, wherein:
2 said adaptive serial to parallel converter adds zeros to a parallel output stream in
3 data positions corresponding to sub-channels that are not currently being used to
4 support said multicarrier wireless link.

1 13. The wireless apparatus of claim 11, wherein:
2 said multicarrier transmit signal is an orthogonal frequency division
3 multiplexing (OFDM) signal; and
4 said transmitter chain further includes an inverse Fourier transform unit to
5 convert a parallel output signal of said adaptive serial to parallel converter from a
6 frequency domain representation to a time domain representation.

1 14. The wireless apparatus of claim 13, wherein:
2 said transmitter chain further includes a guard interval addition unit to add a
3 guard interval to said time domain representation output by said inverse Fourier
4 transform unit.

1 15. The wireless apparatus of claim 2, wherein:
2 said adaptive channelization controller, said receiver chain, and said transmitter
3 chain are all implemented on the same semiconductor chip.

1 16. The wireless apparatus of claim 1, wherein:
2 said channel state information includes information received from a remote
3 location.

1 17. The wireless apparatus of claim 1, wherein:
2 said channel state information includes information that was measured within
3 said wireless apparatus.

1 18. A wireless apparatus comprising:
2 a frequency demultiplexer to separate a received multicarrier signal into
3 multiple portions based on frequency, said multiple portions corresponding to a
4 plurality of predetermined frequency sub-channels and including at least a first portion
5 and a second portion;
6 a first Fourier transform unit to convert said first portion of said multicarrier
7 signal from a time domain representation to a frequency domain representation; and
8 a second Fourier transform unit to convert said second portion of said
9 multicarrier signal from a time domain representation to a frequency domain
10 representation, separately from said first portion of said multicarrier signal.

1 19. The wireless apparatus of claim 18, wherein:
2 said second Fourier transform unit is a different unit from said first Fourier
3 transform unit.

1 20. The wireless apparatus of claim 18, wherein:
2 said first and second Fourier transform units are the same unit, wherein said unit
3 processes said first and second portions of said multicarrier signal at different times.

1 21. The wireless apparatus of claim 18, further comprising:
2 a guard interval removal unit between said frequency demultiplexer and said
3 first Fourier transform unit to remove a guard interval from said first signal portion
4 before said first signal portion reaches said first Fourier transform unit.

1 22. The wireless apparatus of claim 18, further comprising:
2 an adaptive channelization controller to determine which of said plurality of
3 predetermined frequency sub-channels to use to support a multicarrier wireless link,
4 based on channel state information.

1 23. The wireless apparatus of claim 18, wherein:
2 said received multicarrier signal is an orthogonal frequency division
3 multiplexing (OFDM) multicarrier signal.

1 24. The wireless apparatus of claim 18, further comprising:
2 at least one other Fourier transform unit to convert at least one other portion of
3 said multicarrier signal from a time domain representation to a frequency domain
4 representation.

1 25. The wireless apparatus of claim 18, wherein:
2 said frequency demultiplexer includes an analog filter.

1 26. A method comprising:
2 acquiring channel state information associated with a channel having a plurality
3 of sub-channels;
4 determining which sub-channels within said plurality of sub-channels to use for
5 a wireless link based on said channel state information; and
6 delivering sub-channel adaptation information to a receiver chain for use in
7 processing a multicarrier receive signal associated with said wireless link.

1 27. The method of claim 26, wherein:
2 said channel state information includes information received from a remote
3 location.

1 28. The method of claim 26, wherein:
2 said channel state information includes information that was measured within a
3 local receiver.

1 29. The method of claim 26, wherein:
2 determining which sub-channels within said plurality of sub-channels to use for
3 said wireless link includes identifying sub-channels that are not currently being used by
4 other links.

1 30. The method of claim 26, further comprising:
2 delivering sub-channel adaptation information to a transmitter chain for use in
3 generating a multicarrier transmit signal for said wireless link.

1 31. A method comprising:
2 dividing a received multicarrier signal into a plurality of frequency sub-channel
3 components; and
4 individually transforming each of said plurality of frequency sub-channel
5 components from a time domain representation to a frequency domain representation.

1 32. The method of claim 31, further comprising:
2 converting said frequency domain representations resulting from individually
3 transforming said plurality of frequency sub-channel components to a single serial
4 stream based on control information received from an adaptive channelization
5 controller.

1 33. The method of claim 31, wherein:
2 individually transforming includes applying each of said plurality of frequency
3 sub-channel components to a separate Fourier transform unit.

1 34. A system comprising:
2 an adaptive channelization controller to determine which of a plurality of
3 predetermined sub-channels to use to support a multicarrier wireless link, based on
4 channel state information;

5 at least one dipole antenna to receive a multicarrier signal associated with said
6 wireless link; and
7 a receiver chain to process said received multicarrier signal based on control
8 information output by said adaptive channelization controller.

1 35. The system of claim 34, wherein:
2 said adaptive channelization controller determines which of said plurality of
3 predetermined sub-channels to use to support said multicarrier wireless link by
4 identifying sub-channels that are currently being utilized by other wireless links.

1 36. The system of claim 34, wherein:
2 said at least one dipole antenna includes multiple dipole antennas.

1 37. An article comprising a storage medium having instructions stored thereon that,
2 when executed by a computing platform, result in:
3 acquiring channel state information associated with a channel having a plurality
4 of sub-channels;
5 determining which sub-channels within said plurality of sub-channels to use for
6 a wireless link based on said channel state information; and
7 delivering sub-channel adaptation information to a receiver chain for use in
8 processing a multicarrier receive signal associated with said wireless link.

1 38. The article of claim 37, wherein:
2 determining which sub-channels within said plurality of sub-channels to use for
3 said wireless link includes identifying sub-channels that are not currently being used by
4 other wireless links.

1 39. The article of claim 37, wherein said storage medium further includes
2 instructions that, when executed by said computing platform, result in:

- 3 delivering sub-channel adaptation information to a transmitter chain for use in
- 4 generating a multicarrier transmit signal for said wireless link.